5   1.   A method of producing a modulated signal with forward error correction from an information bit stream in a QAM transmitter comprising:

producing first and second parity bit streams corresponding to an information bit stream using first and second concatenated coders interconnected by an interleaver;

selecting respective subsets of said first and second parity bit streams in accordance with a

10   puncturing pattern;

combining the selected subsets of said first and second parity bit streams with said information bit stream;

producing a QAM symbol stream by mapping a first subset of the combined bit streams to an I dimension and mapping a second subset of the combined bit streams to a Q dimension;

15   modulating said QAM symbol stream to produce a modulated signal; and,

transmitting said modulated signal over a communications link.

2.   The method recited in claim 1, wherein said puncturing pattern selects respective subsets of parity bits from said first and second parity bit stream such that the number of parity bits represented in

20   each QAM symbol of said QAM symbol stream is less than the number of information bits represented by said each symbol.

3.   The method recited in claim 1, wherein each of said mapping to an I dimension and said mapping to a Q dimension comprises:

25   placing one or more parity bits in least significant positions of said dimension; and,

placing information bits in more significant positions of said dimension.

4.   The method recited in claim 1, wherein each of said mapping to an I dimension and said mapping to a Q dimension comprises:

30   placing an information bit in a least significant position of said dimension;

placing one or more parity bits in a more significant position of said dimension; and,

placing additional information bits in remaining positions of said dimension.

5.   The method recited in claim 1, where each of said mapping to an I dimension and said

35   mapping to a Q dimension comprises:

placing one or more parity bits in a most significant position of said dimension; and,

placing additional information bits in less significant positions of said dimension.

6. A method of producing a recovered information bit stream from a noisy modulated signal with forward error correction in a QAM receiver comprising:

receiving a modulated signal representing a QAM symbol stream from a communications link, where said received signal includes errors;

demodulating said received signal;

producing a decoded bit stream by iteratively decoding said demodulated signal wherein said demodulated signal is decoded independently in the I dimension and the Q dimension using a puncturing pattern; and,

regenerating said information bit stream from said decoded bit stream.

7. The method recited in claim 6, wherein said puncturing pattern selects respective subsets of parity bits from first and second parity bit streams such that the number of parity bits represented in each QAM symbol of said QAM symbol stream is less than the number of information bits represented by said each symbol.

8. A method in a QAM receiver for adapting to performance conditions in a communication system, comprising:

receiving a QAM symbol stream from a transmitter;

determining a performance metric of the communication system;

determining, based on the performance metric, a puncturing pattern for use in the transmitter to improve performance of the communication system; and

communicating the puncturing pattern to the transmitter.

9. The method recited in claim 8, wherein said puncturing pattern selects respective subsets of parity bits from first and second parity bit streams such that the number of parity bits represented in each QAM symbol of said QAM symbol stream is less than the number of information bits represented by said each symbol.